

AMENDMENTS TO THE CLAIMS

Please withdraw claims 1-15 and 31-46 so that the claims remaining in the application are as follows:

1. (Withdrawn): An apparatus comprising:
a first system of microfabricated components including at least a reservoir and a channel; and
a second system of detection components including at least a lens, said lens being focused on a region (hereinafter "sensing platform") of said first system, said region being coupled to said reservoir by said channel.
2. (Withdrawn): The apparatus as set forth in claim 1, wherein the second system includes a fluorescence detection system.
3. (Withdrawn): The apparatus as set forth in claim 1, wherein the second system includes a laser, said laser being positioned to illuminate a sample in the sensing platform.
4. (Withdrawn): The apparatus as set forth in claim 1, wherein the first system further comprises a pump.
5. (Withdrawn): The apparatus as set forth in claim 4, wherein the pump is electro-magnetically actuated.
6. (Withdrawn): The apparatus as set forth in claim 4, wherein the pump is piezoelectrically actuated.
7. (Withdrawn): The apparatus as set forth in claim 1, wherein the first system further comprises a valve.

8. (Withdrawn): The apparatus as set forth in claim 1, further comprising a thermoelectric cooler positioned to control the temperature of at least one of the microfabricated components.

9. (Withdrawn): The apparatus as set forth in claim 1, further comprising at least one driver unit coupled to provide control signals to at least one of the microfabricated components.

10. (Withdrawn): The apparatus as set forth in claim 1, wherein the first system is disposable.

11. (Withdrawn): The apparatus as set forth in claim 1, wherein the first system further comprises a mixer.

12. (Withdrawn): The apparatus as set forth in claim 11, wherein the mixer includes a nozzle positioned to inject a first substance into a chamber containing a second substance.

13. (Withdrawn): The apparatus as set forth in claim 1, wherein the first system further comprises a filter.

14. (Withdrawn): The apparatus as set forth in claim 1, wherein at least a portion of the microfabricated components are etched in a silicon substrate.

15. (Withdrawn): The apparatus as set forth in claim 1, wherein at least a portion of the microfabricated components are formed in a polymer substrate.

16. (Original): A biosensor system for processing a sample and detecting one or more target substances in the sample, comprising:

a data processing and control unit;

a microfluidic system coupled to communicate with the data processing and control unit, wherein the microfluidic system includes microfabricated components;

a detection system coupled to receive a processed sample from the microfluidic system and transmit signals regarding the target substances to the data processing and control unit; and
a handheld housing including the data processing and control unit, the microfluidic system, and the detection system.

17. (Original): The system as set forth in claim 16, further comprising a user interface coupled to receive input from a user and provide output to the user, the user interface being further coupled to provide the input from the user to the data processing and control unit.

18. (Original): The system as set forth in claim 17, wherein the output to the user includes information regarding the target substances.

19. (Original): The system as set forth in claim 17, wherein the input from the user includes information regarding the processing to be performed on the sample.

20. (Original): The system as set forth in claim 16, wherein the data processing and control unit processes information from the detection system.

21. (Original): The system as set forth in claim 16, wherein the data processing and control unit includes one or more driver units coupled to control operation of the components in the microfluidic system.

22. (Original): The system as set forth in claim 16, wherein the data processing and control unit includes one or more driver units coupled to control operation of the detection system.

23. (Original): The system as set forth in claim 16, further comprising a thermo-electric cooler for heating and cooling the sample during processing.

24. (Original): The system as set forth in claim 16, wherein the microfabricated components include one or more pumps.

25. (Original): The system as set forth in claim 24, wherein at least one of the pumps is electro-magnetically actuated.

26. (Original): The system as set forth in claim 24, wherein at least one of the pumps is piezoelectrically actuated.

27. (Original): The system as set forth in claim 16, wherein the microfabricated components include one or more mixers.

28. (Original): The system as set forth in claim 27, wherein the one or more mixers include a nozzle for injecting a first substance into a chamber containing the sample.

29. (Original): The system as set forth in claim 16, wherein the microfabricated components include one or more filters.

30. (Original): The system as set forth in claim 16, wherein the microfabricated components include one or more valves.

31. (Withdrawn): A method for purifying and detecting one or more target substances in a sample using a handheld biosensor system, the method comprising:
processing the sample using microfabricated components in the biosensor system;
transferring the processed sample to a sensing platform in the biosensor system; and
detecting the one or more target substances on the sensing platform using a detection system in the biosensor system.

32. (Withdrawn): The method as set forth in claim 31, wherein the processing includes concentrating the sample.

33. (Withdrawn): The method as set forth in claim 31, wherein the processing includes filtering the sample.

34. (Withdrawn): The method as set forth in claim 27, wherein the processing includes heating the sample.

35. (Withdrawn): The method as set forth in claim 31, wherein the processing includes pumping the sample into a reservoir and mixing the sample with a reagent.

36. (Withdrawn): The method as set forth in claim 31, wherein the processing includes washing the sample.

37. (Withdrawn): The method as set forth in claim 31, wherein the processing includes generating driver signals for controlling the microfabricated components.

38. (Withdrawn): The method as set forth in claim 31, wherein the processing includes processing the sample for detecting a toxin.

39. (Withdrawn): The method as set forth in claim 31, wherein the processing includes processing the sample for detecting bacteria.

40. (Withdrawn): The method as set forth in claim 31, wherein the processing includes processing the sample for detecting a virus.

41. (Withdrawn): The method as set forth in claim 31, wherein the processing includes processing the sample for detecting genetic characteristics.

42. (Withdrawn): The method as set forth in claim 31, wherein the detecting includes illuminating the sample using a laser light source.

43. (Withdrawn): The method as set forth in claim 31, wherein the detecting includes illuminating the sample using a laser light source.

44. (Withdrawn): The method as set forth in claim 31, wherein the detecting includes detecting fluorescence of the processed sample.

45. (Withdrawn): The method as set forth in claim 31, further comprising: communicating detection information to a data processing system within the biosensor device.

46. (Withdrawn): A device for sensing a target substance in a sample comprising means for implementing the method of claim 31.